BIOME

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The Diamond Jubilee of the Victoria Memorial Museum Building

In the past 75 years, the Victoria Memorial Museum Building, which houses the National Museum of Natural Sciences, has become an Ottawa landmark.

However, the origins of the Museum stretch back even further, to 1842. In that year, William E. Logan founded the Geological Survey of Canada. Logan encouraged his staff to collect not only rocks and minerals, but also fossils, plants and animals. These collections, displayed in the Geological Survey's headquarters in Montreal, were the foundation on which the original National Museum of Canada was established.

The collections rapidly became prominent: in 1851, a collection of minerals was displayed by Logan in the Crystal Palace at the Great Exhibition in London. It was noted that "...of all the British colonies, Canada is that whose exhibition is the most interesting and most complete...." Perhaps as a result, in 1856 an Act of Parliament formally empowered the Survey to "...establish a Geological Museum at some convenient place which shall be open at all reasonable hours to the public."

In 1881, the Survey and the Museum were moved to Ottawa and housed in the Clarendon, a former luxury hotel on the corner of Sussex and George Streets. Within its first year in Ottawa, the Museum was visited by almost 10,000 people, a huge increase when compared with the best yearly attendance in Montreal, 1650.

The Clarendon eventually became too small for a "national museum" and in 1905, after decades of dreaming and debate, construction began on the Victoria Memorial Museum. Described by the architect as being in the "free gothic" style, the Museum was constructed of locally quarried limestone by 300 master stonemasons and cutters imported from Scotland.

Despite a year-long strike by the stone workers and the difficulties of construction on unstable clay, the Victoria Memorial Museum was finally completed in 1911. It was described in a tourist guide book of the day as follows "This imposing building houses the Geological Survey with its extensive natural history and anthropological collections, and the National Art Gallery. In design it is simple but effective. This simplicity emphasizes most successfully the massiveness and spaciousness of this impressive pile of masonry... The exterior of the building is decorated with carvings in stone of Canadian mammals...."

However, the difficulties of construction had not yet ended: the foundations sank, the walls and floors cracked and the massive tower that surmounted the main entrance leaned dangerously, pulling the whole front of the building with it. As a result, the top of the tower was removed in 1915, and the sinking stopped. The evidence of the building's unstable foundations can still be seen in the cracked walls of its sub-basement today — and in the building's truncated appearance!

Beginning with temporary exhibits, the Museum had, by 1912, prepared permanent exhibits in geology and invertebrate palaeontology. A year later it was reported that: "A well-preserved skeleton of a large, non-crested hadrosaurian dinosaur in the vertebrate palaeontological collection of the... (Museum), is not only of great scientific interest, but noteworthy as being the first dinosaurian specimen to be mounted for exhibition in a Canadian museum. This specimen was discovered in the summer of 1912, by... Charles H. Sternberg, and was prepared and mounted the following winter by him and his son, Charles M. ...." Charles M. Sternberg, who went on to build up one of the world's most important dinosaur collections for the Museum, later recollected, "We got a lot of material, but that was the showy thing... about the first one mounted in that method anywhere in the world. From then on, the Museum was important."

On the night of February 3, 1916, a disastrous fire destroyed the Centre Block of the Parliament Buildings. The fire was still smouldering when Prime Minister Sir Robert Borden and the government met in the auditorium of the Museum. Within days, most of the displays, staff and collections had been moved out to make room for the government (the Senate occupied what had been the Hall of Invertebrate Fossils). The Museum was at a rather low point in its history, and four years would pass before it could move back.

But there were some lighter moments. As Charles M. Sternberg recalled, "Whenever there was an important discussion going on, I could go up from my room in the basement and listen from the... (auditorium) gallery. But one day, someone in a high position who had his office directly over my lab found a louse and he sent his assistant downstairs to ask me if any of these dinosaurs had lice. Well, I said 'You tell the honourable gentleman I haven't anything here that is less than three million years old. Let him draw his own conclusions.' I heard no more."

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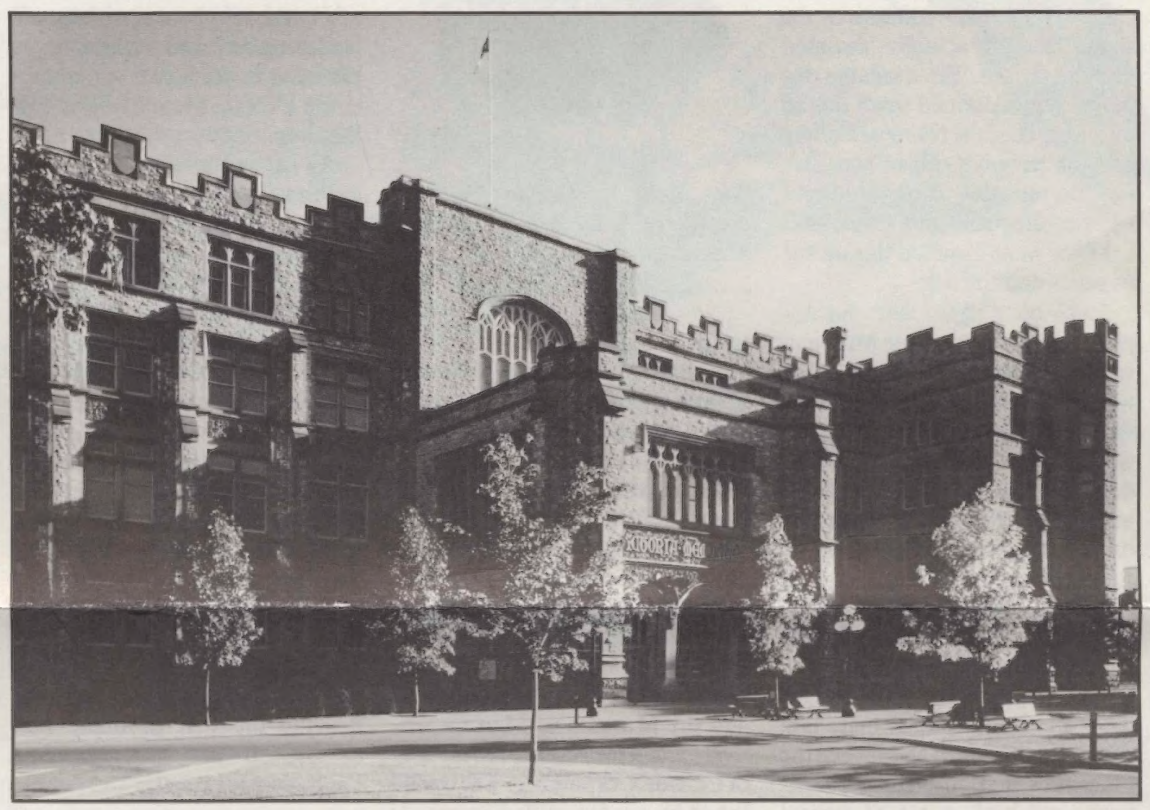

An Ottawa landmark. The Victoria Memorial Museum Building, at the corner of Metcalfe and McLeod Streets.

Construction of the VMMB began in 1905, and was completed in 1911.

In 1915, structural problems resulted in the removal of the top of the tower that surmounted the main entrance of "...this impressive pile of masonry...."

First home in Ottawa: the Clarendon Hotel.

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In 1927, the name "National Museum of Canada" was authorized by the government, thus officially giving the institution the status it had actually assumed decades before. The available display space remained small due to the presence of the National Gallery and the Survey's offices and labs, but, despite this, some attractive palaeontological and zoological exhibits were installed during the twenties and thirties.

1942 once again saw the displacement of much of the Museum, when most of the exhibition space was taken over by wartime agencies. *The Ottawa Journal* wrote: "And finally the grim truth dawned on the hall of palaeontology. These were to be banished back to the past again. Prehistoric creatures are to be replaced by civil servants and science by war work." Although exhibition had suffered another setback, the Museum continued its films and talks, as well as the loan of educational materials, which dated back to 1875 when the Museum's first "travelling educational exhibit," a set of typical Canadian rocks, minerals and fossils, was sent to schools in southern Ontario.

The Geological Survey and the National Museum were administratively separated in 1950, but it was not until a decade later that the Survey and the National Gallery were relocated to other buildings. Forty-nine years after it was constructed, the Victoria Memorial Museum Building finally became the exclusive home of the National Museum, by then sub-divided into a Natural History Branch and a Human History Branch. In 1968 these two branches were renamed the Museum of Natural Sciences and the Museum of Man respectively when the National Museums of Canada Corporation was established by an Act of Parliament. A year later, the VMMB was closed for massive renovations to make the building safer and to bring the exhibits up to modern standards.

Sir William Edmund Logan, founder of the Geological Survey of Canada.

In 1974, the VMMB re-opened its doors to the public with two of the four floors completed. The exhibit galleries had been completely re-designed to make them more exciting and more appealing to a wider audience. Although the Victoria Memorial Museum Building had been closed for five years, the National Museum of Natural Sciences' educational and scientific activities were not curtailed. For example, this year saw the publication of A.W.F. Banfield's *The Mammals of Canada*, which remains a standard reference work for scientists and amateur naturalists to this day. New galleries were added in the following years. The most recent, *Plant Life*, opened to the public in 1981, and a second renovation of *Birds in Canada* was carried out in 1986.

Next year, Indian artifacts and human history displays will be moving to new quarters in Hull, but the dinosaurs, birds, mammals and other natural history exhibits will be staying here, and we have begun planning in earnest to occupy the entire Victoria Memorial Museum Building.

As a prelude to a greatly expanded Museum, we have recently launched a year-long celebration of the 75th Anniversary of the VMMB, including a major exhibit that presents the people and events which have been significant in our long history. The exhibit also shows off some of the weird and wonderful things that we have collected, and provides a glimpse of the near future of the Museum and the VMMB.

We have hired a younger mascot, the 11,000-year-old Woolly Mammoth, to represent us. A full-sized mammoth family will be appearing on the lawn of the VMMB this summer and will become the first of many new exhibits at the Museum. Join the celebration!

Barry Peers
Public Services Division
and
Nick Bélanger
Enquiries and Resource Centre

EDITORIAL

Yesterday, Today, and Tomorrow

As mentioned in our previous issue, the discovery of nature unknown reached a frenzy by the late 1700s and early 1800s. Adventurers, explorers, entrepreneurs and scientists sailed, walked, paddled and climbed into virtually every corner of the earth, bringing back the bizarre, the valuable, the dangerous, the ugly and the beautiful. Soon the number of different plants and animals became more than a single mind could encompass.

Linnaeus, a botanist, proposed a system in which each type of plant or animal had a unique name. By 1758, with the fifth edition of his *Systema Natura*, every name was comprised of just two parts: a generic and a specific name — the binomial scientific name, now universally adopted. Some 100 years later, Charles Darwin's theory that all animals and plants were related to one another and had all developed through a slow process of change over vast amounts of geological time provided a genealogical framework into which biological species could be fitted and catalogued.

It would be wrong to suggest that this task is now accomplished; far from it. Nor was Darwin's work accepted immediately. The scientists who joined the new Geological Survey of Canada in 1842 probably would not have considered using it. But by 1911, when construction of the Victoria Memorial Museum Building was completed, a British scientist, C. Tate Regan, was working on an entire Darwinian genealogy of the fishes of the world. As knowledge expanded, so did the "natural" sciences. About 1940, the new science of ecology was recognized. In the 1950s, the study of animal behaviour in nature (ethology) arose under the leadership of Konrad Lorenz. And in 1958, an entomologist named Henig suggested a technique for discovering the past relationships of lifeforms that has rocked the previous concepts of the genealogical relationships among animals.

As we celebrate the 75th anniversary of the VMMB, it is intriguing to speculate about what the world will be like in another 75 years. Since the VMMB was built, the "look" of life has vastly changed: think of radio, television, cars, airplanes, rocket ships, plastics, telephones and nuclear power. In 1975, I bought the first programmable hand calculator available on the market for $1000. The same price today will buy a book-sized computer that in 1975 would have needed a room to house! We have seen men reach for, and grasp, outer space. Through knowledge gained from research such as we do at the Museum, we have recognized and found ways to control some of the pollution, the overexploitation of our natural resources, and the accelerating extinction of species from the face of the earth. Like the cataloguing of species, this work is far from complete.

I am sure that you will join me in wishing this grand old building a happy birthday, and as we blow out the candles on "our" birthday cake, also wish with me that the knowledge we gain from our vital research can ensure the safety, and not the destruction, of our world.

Alan R. Emery
Director

The Activity Corner: Homes for the Birds

What better way is there to welcome spring after a long Canadian winter than by setting out nest boxes for birds?

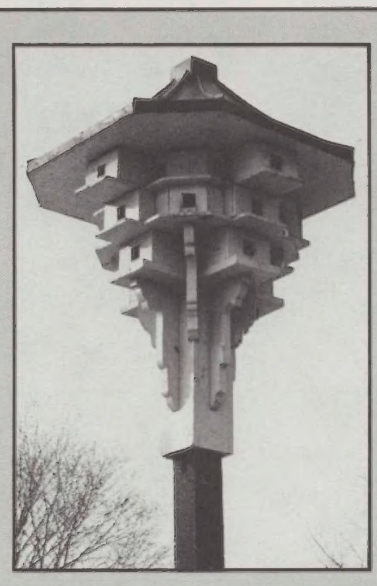
Whether you are a nature photographer, a birdwatcher, or someone who likes to observe the changes in the natural world, you will get many hours of pleasure from watching your feathered friends nest in your own yard.

Bird houses can range from simple boxes to very elaborate expressions of creativity and whimsy. Visitors to the Victoria Memorial Museum Building may have noticed the multi-storey Purple Martin houses on the west lawn of the Museum and facing Elgin Street. A successful Purple Martin house will attract the same colony of birds year after year.

Many species of birds, from Wood Ducks to bluebirds, can be attracted to much simpler domains than the apartment-style Purple Martin houses. Inexpensive nest boxes can be built easily with waste ends of lumber, or even mill-slabs with bark still intact. Before beginning to build, however, you must consider what species you wish to attract, their habits, and what options your yard can provide. Some birds such as chickadees prefer nest boxes set near shrubs or bushes, while Northern Flickers like to nest in open spaces. Many species of ducks will only use a box that is standing in or very close to water.

The overall size of the box and diameter of the entrance hole will vary greatly, depending on the size of the bird. A few rules of thumb are common to all ventures, however, and if followed will help keep your tenants happy.

For most bird houses, a partially sunny location is good, with the entrance turned away from the prevailing winds. It is also a good idea to drill a couple of holes in the walls near the roof to allow for ventilation, as well as some holes in the floor near the walls for drainage.



Visitors to the Victoria Memorial Museum Building may have noticed the multi-storey Purple Martin houses.

Protect nest boxes from predators such as cats, squirrels or raccoons. A good way to do so is to place the box on a pole and wrap a wide sheet of metal around the pole.

Most birds prefer to nest in a clean empty box, so boxes must be cleaned thoroughly at least once a year, after the young have left the nest. This will eliminate parasites which may affect the next users of the box. A detachable roof will allow for easy cleaning, and will also enable you to watch the birds' progress during the nesting season. This must be done very carefully, however, preferably when the adults are off feeding. The box must not be disturbed at all during the first days of incubation, or the adults may abandon the nest.

An excellent free brochure that provides some easily constructed designs, *Nest Boxes for Birds*, is available from the Publication Section, Canadian Wildlife Service, Ottawa, Ontario K1A 0E7. You can also write to the Museum Enquiries and Resource Centre for a list of other free or low-cost brochures dealing with bird houses (and bird feeders).

Carol Thiessen
Public Services Division

BIOME

Editor-in-Chief:
Nick Bélanger

Acknowledgements:
Bonnie Livingstone
Annie J. Ollivier

Art Direction:
Design Division, NMNS

Graphic Design:
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Illustrations:
Charles Douglas
Sandra Taylor

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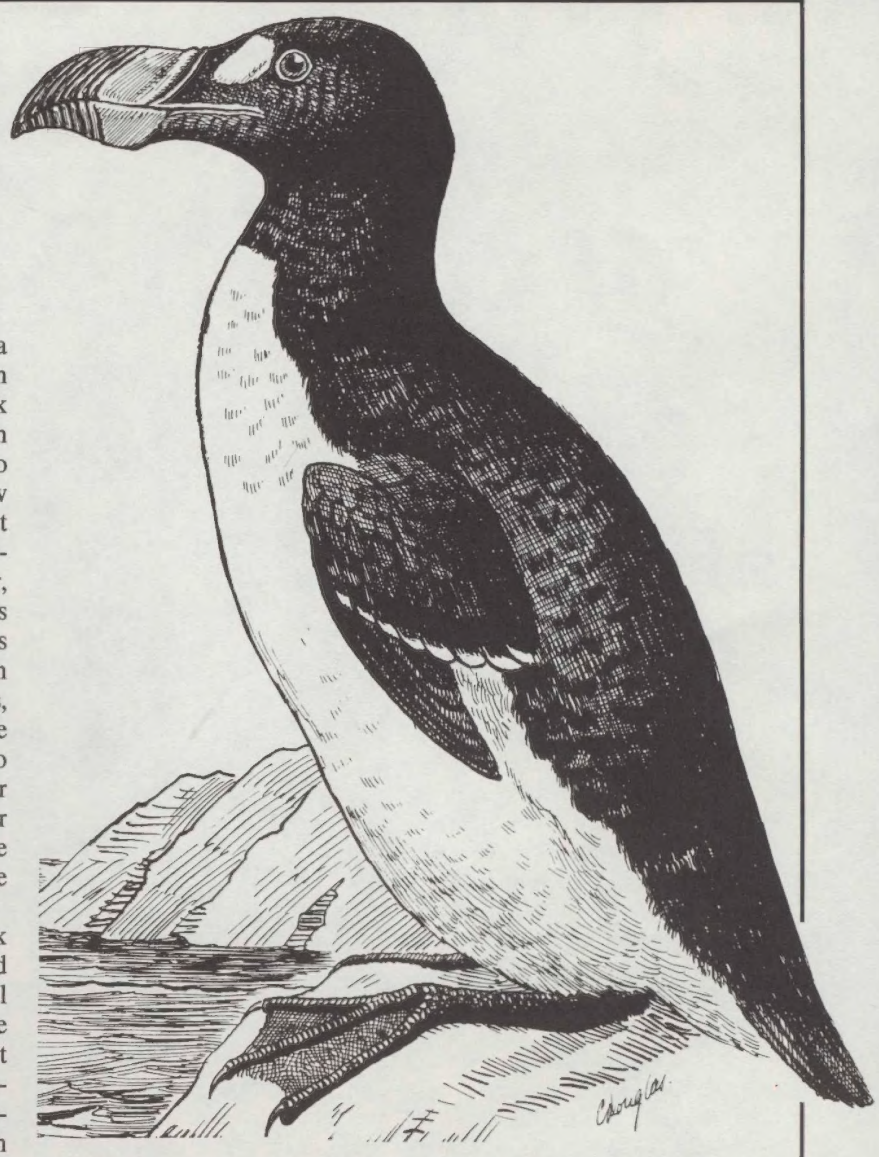
Comments and questions should be directed to:

BIOME
National Museum of Natural Sciences
Ottawa, Ontario
K1A 0M8

The Great Auk: Hunted to Extinction



Eldey is one of a chain of rocky, volcanic islets or skerries called the Birds Islands, lying off Cape Reykjanes, the southwest point of Iceland. Jon Brandsson, Siguror Islefsson and Ketil Ketilsm had been systematically searching this stretch of coast for their prey, and on June 3, 1844, they found on Eldey what they were looking for: a pair of Great Auks (*Pinguinus impennis*).

Two things were different on this occasion from the thousands of times that men had hunted Great Auks previously: these three men were professional hunters supplying birds and their eggs to collectors willing to pay almost any price, and these two large, flightless birds, caught alive after a brief chase along the rocks, were the last of their species. When the birds were killed a short time later for their skins, a void was created in our natural world.

The Great Auk, which stood more than 60 cm high, was the largest member of the auk family, Alcidae. These birds were the ecological counterparts of the penguins of the Antarctic, with similar coloration and dense, waterproof plumage. Excellent divers, they also shared with penguins the ability to "fly" underwater in pursuit of fishes much more gracefully than they could get about on land, steering with their short, pointed wings and being propelled by their powerful legs and feet.

It is somewhat surprising that the last reliable record of the Great Auk is from Iceland, since almost all the early observers record that the largest population of these birds was in North American waters, centered around their principal breeding ground of Funk Island, about 70 km off the northeast coast of Newfoundland. Their principal nesting site off the Iceland coast, the island of Geirfuglasker, disappeared in a series of volcanic disturbances beginning in March 1830, and ending with the submergence of the island within the year. In the British Isles, the Great Auk seems to have bred on St. Kilda in the outer Hebrides, the Orkneys, and possibly the Faroes.

If the Great Auk was very selective about its nesting sites, it was much less so in its wintering range, moving south along both coasts of the Atlantic from southern Greenland to southern Spain, and in North America, as far as Florida. Bones of the Great Auk have been found in archaeological sites in Labrador, Newfoundland, Cape Breton Island, Maine (dating back 4200 years), Massachusetts and Florida and, on the European side, in Iceland, Denmark and numerous localities in the British Isles.

Remains of the Great Auk have been found in these sites because the auks were apparently quite tasty, easy to kill or capture, and a valuable source of feathers. When Jacques Cartier discovered Funk Island in 1534, he and his men were among the first Europeans to stock up their larder with a few dozen of the thousands of Great Auks in the waters around Newfoundland. Some 250 years later, according to George Cartwright's journal, published in 1792, boats came in from Funk Island laden with eggs and the bodies of birds, for "...it has been customary of late years for several crews of men to live all summer on that island for the sole purpose of killing birds for the sake of their feathers; the destruction which they have made is incredible."

The extinction of the Great Auk is a sad account of human greed and insufficient knowledge. Several publications within two or three years of the auk's extinction did not even list the bird as rare or endangered. The rigid nesting requirements of the Great Auks, which restricted themselves to a very few rocky islets, plus their colonial habits and a one egg per year "clutch" laid on bare rock, set them up for human predation or natural disasters such as the volcanic disappearance of the principal Icelandic breeding ground. Accounts differ on the number of Great Auk specimens remaining in museum or private collections, but the most recent figures indicate that 78 skins and mounts (possibly three others), 68-70 eggs, two or three physiological preparations (viscera preserved in fluid), four or possibly more skeletons, and several hundred isolated bones exist.

In hindsight, it is easy for us to see what went wrong and why this magnificent bird has become extinct. A far more difficult thing for us to do is to learn from the lesson of the Great Auk to ensure that nothing as senseless as extinction, particularly based on greed, is ever allowed to happen again. A more comprehensive article on the Great Auk is being prepared for the *Neotoma* series and should be available in April.

Steve Cumbaa
Zooarchaeological Identification Centre

Poison Ivy

While shovelling our laneways yet one more time (Canada's *real* national winter sport), many of us console ourselves with daydreams of warmer days to come, and more pleasant activities, such as hikes in the woods. But we should also bear in mind that:

"Leaves three quickly flee;
Berries white, poisonous sight
Berries red, have no dread."

This old adage very simply informs us of the basic features of poison ivy. The pointed leaves in groups of three and the white berries are the most obvious characteristics of this plant, which for many Canadians can cause such a serious skin irritation that it may require hospital care.

Poison ivy is a common woody perennial, which spreads by seeds and creeping rhizomes (underground stems) and may form dense patches on the forest floor, or climb as a vine, entwining and covering its host support. Almost all parts of the plant, including stems, leaves, roots and berries, contain the toxic substances causing the poisoning.

Known botanically as *Rhus radicans*, poison ivy belongs to a large family of plants, the Anacardiaceae. Most of the family's 70 genera and about 600 species are found in the world's tropical and warmer temperate regions. In fact, a close relative of poison ivy is a tropical American tree, *Anacardium occidentale*, perhaps best known to us by its fruit, the cashew-nut.

Two toxic relatives of poison ivy are found in Canada, although they have a very limited distribution in this country. Western poison oak, *Rhus diversiloba*, is an oak in name only, as it closely resembles poison ivy and has similar effects. Poison sumac, *Rhus vernix*, is even more toxic. Individuals in this species are not easily confused with poison ivy because of their larger size, often forming dense stands of large shrubs or small tree-like groves. Their compound leaves, somewhat fern-like, are also unmistakably different from the three leaflets of poison ivy.

Few people come in contact with western poison oak or poison sumac, but because poison ivy grows in a variety of habitats ranging from dry and exposed locations to moist and shaded areas, contact with this plant is quite common. Skin irritation may occur almost immediately after contact with the plant, or may take several days to manifest itself. In most cases, itching may be lessened by a thorough washing of the affected area with a strong laundry soap, or through the application of commercially available lotions and salves, such as calamine lotion. The irritation will usually disappear in about a week, although more serious cases should be attended to by a physician, who may prescribe pills or injections for patients who otherwise cannot find relief.

Illustration from ***Poison Ivy, Poison Sumac, and Other Rash-Producing Plants****, by John M. Kingsbury. Reproduced courtesy of Cornell Cooperative Extension, Cornell University.*

Eradication of poison ivy around personal property is not an easy task. Burning the plant is a very dangerous practice, as the smoke from the fire will contain the toxic substances and may be inhaled, thus causing severe irritation of the nose, throat and even the lungs. Further information on poison ivy and its relatives (Publication 1699) is available free from the Communications Branch, Agriculture Canada, Ottawa, Ontario K1A 0C7.

David M. Jarzen
Paleobiology Division
and
Nick Bélanger
Enquiries and Resource Centre

A Matter of Customs

R.G. Day, Paleobiology Division

Each year, thousands of Canadians travelling abroad return home with photographs and tales of adventure from such far away exotic lands as Botswana, Madagascar, India and Ecuador. A few of these same voyagers will return to Canada only to face disappointment and the possibility of legal prosecution.

They arrive at Canadian Customs to find that their leopard skin coat, beautiful orchid or ivory bracelet is confiscated; the traveller is angry and frustrated, and may have to appear in court. This unhappy incident could have been avoided, but in the excitement of departing, such individuals have ignored reading information provided to travellers about the international controls on certain plants and animals.

In July 1975, Canada became a party to the Convention on International Trade in Endangered Species of Wild Fauna and Flora, commonly known by its acronym, CITES. Currently 92 countries are part of this international agreement, which regulates the movement or trade of thousands of species of plants and animals between countries, and controls the exploitation of other species within their own boundaries. Movement or trade of these species is either totally banned or requires a CITES permit.

The number and variety of animals and plants listed by CITES (the lists are updated at regular intervals) as requiring permits for movement or trade is large. It would be fruitless to print the lists of those organisms here, but the following examples provide a representation: wolves, whales, elephants, monkeys, crocodiles, marine turtles, parrots, orchids, cacti and all cats except the domestic variety. It is important to remember that the export and import regulations apply not only to the organisms themselves (alive or dead), but also to their products or to articles derived from them. This includes stuffed animals, purses, belts, hats, jewelry, ivory carvings, furs, perfumes, etc.

In Canada the convention trade agreements are administered by the Canadian Wildlife Service (Ottawa, Ontario, K1A 0E7) and enforced by Canada Customs under the Customs Act and the Export and Import Permits Act. Generally, objects, products or organisms listed by CITES are confiscated at the border crossings or points of entry into Canada. Unless the person bringing the material into the country has a valid, current permit issued under CITES to cover the specific movement of the item in question, Canada Customs officials are instructed to confiscate the goods.

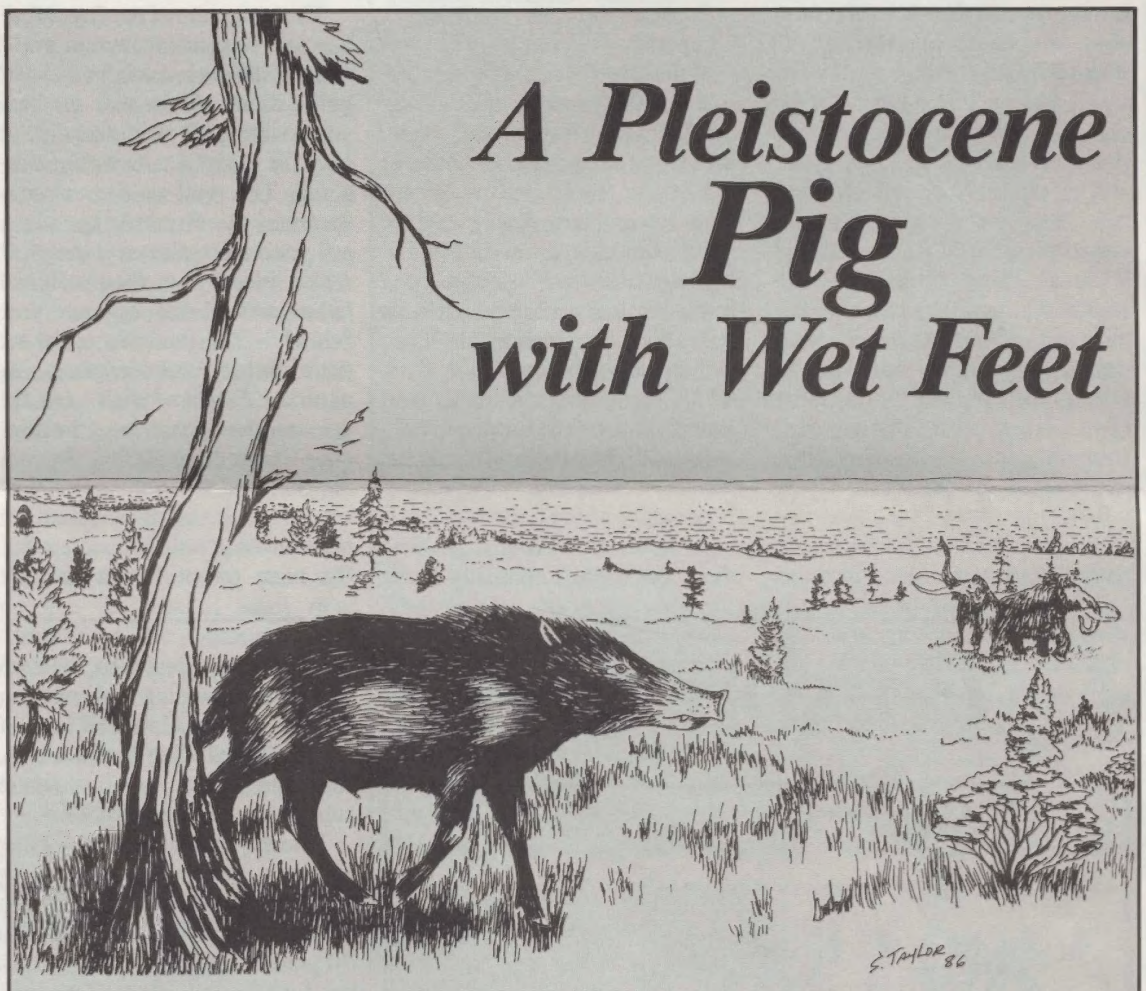
Canadian Customs officials have, since 1975, confiscated thousands of objects from uninformed travellers. The traveller must surrender the goods, (often acquired at great personal expense) to the officials. Some of the objects brought into Canada were purchased abroad at markets, boutiques or through illegal dealers, and cost thousands of dollars. In most cases the person importing the material has little recourse to lessen the financial loss. The carved ivory statues illustrated in the photographs accompanying this article were confiscated by Customs, and each valued at over $25,000.!

The international nature of the CITES trade agreements exemplifies how nations around the world have taken steps to protect and better manage their natural resources. It is encouraging to note that permit requests issued by CITES have increased each year since 1975, indicating that individuals and dealers are using the system and its controls as they were designed to be used. Hopefully the illegal movement and trade of endangered and protected species will decrease proportionately with the increase in permits.

The Canadian Wildlife Service has published a brochure entitled *Noah didn't need a Permit... What about You?* in which the restrictions and importance of the CITES agreements and their impact on the Canadian traveller are explained. The brochure ends with the statement "the onus is on you." It is the responsibility of each of us to ensure that what we bring home as souvenirs or memorabilia of our trip are *not* on the CITES lists. To quote the Canadian Wildlife Service: "It's far easier to leave the article on the shelf, to forget about owning an exotic pet or plant. Then you won't have to worry about permits, and you won't be contributing to the trade in endangered species. You will be helping these animals and plants to remain in the wild where they belong. Without a consumer market, there would be no motive to kill or capture them."

David M. Jarzen
Paleobiology Division
and
Charles G. Gruchy
Assistant Director
Collections and Research

A Pleistocene Pig with Wet Feet



A steady trickle of fascinating fossils enters the doors of the Museum's Paleobiology Division. Particularly intriguing is a specimen received in February 1986 from Bob Grantham, Curator of Geology at the Nova Scotia Museum. It was obviously part of a right lower jaw with molar teeth. Although much of the jaw and some of the teeth were covered by a tough quartzy sand, the fossil could be identified as that of a peccary.

Peccaries are related to pigs, but differ from them in several ways, including their simple molars. Only two species presently live in North America, the white-lipped and collared peccaries. They are the remnants of a greater variety of generally larger peccaries that occupied this continent during the ice age. But comparison of the fossil with other peccaries showed that it was closest to the extinct long-nosed peccary (*Mylohyus nasutus*). Further, the lack of heavy wear on the teeth indicated the specimen represented an individual that died in early adulthood. I found by consulting various books and scientific papers that the long-nosed peccary was large and long-legged. Further, it probably lived in open areas near cold-temperate forest margins in what is now eastern and central United States during the ice age or Pleistocene (approximately the last two million years).

Apart from the fact that the fossil represents an unusually large individual, its method and place of discovery is even more interesting. The fragment was pulled up from the western margin of Georges Bank, off the coast of New England, by a scallop dredger! Encrusting marine invertebrates that look like barnacles and bryozoans attest to the fossil's source on the sea floor. This situation, although rare, is not unique, for remains of other large ice age mammals such as mammoths, mastodons, extinct moose (*Cervalces scotti*) and muskoxen (*Symbos cavifrons*) have also been dredged up from the Atlantic coastal shelf during this century. Evidently these extinct mammals occupied the region when world sea level was much lower during the peak of the last glaciation about 25,000 to 15,000 years ago.

So, with the aid of our "hypothetical binoculars," this unprepossessing fragment of brown bone dredged up off the Atlantic coast by a Nova Scotia fisherman allows us a sudden glimpse of the past: exposed coastal shelf swept by frigid winds from ice caps on its northern rim; scattered herds of mammoths and helmeted muskoxen grazing phlegmatically on patches of grassy tundra-like terrain; mastodons and large-antlered moose splashing through marshes surrounded by straggling spruce forest. And watching from the forest margin, a rough-haired, keen-eyed peccary the size of a small white-tailed deer!

C.R. Harington
Paleobiology Division